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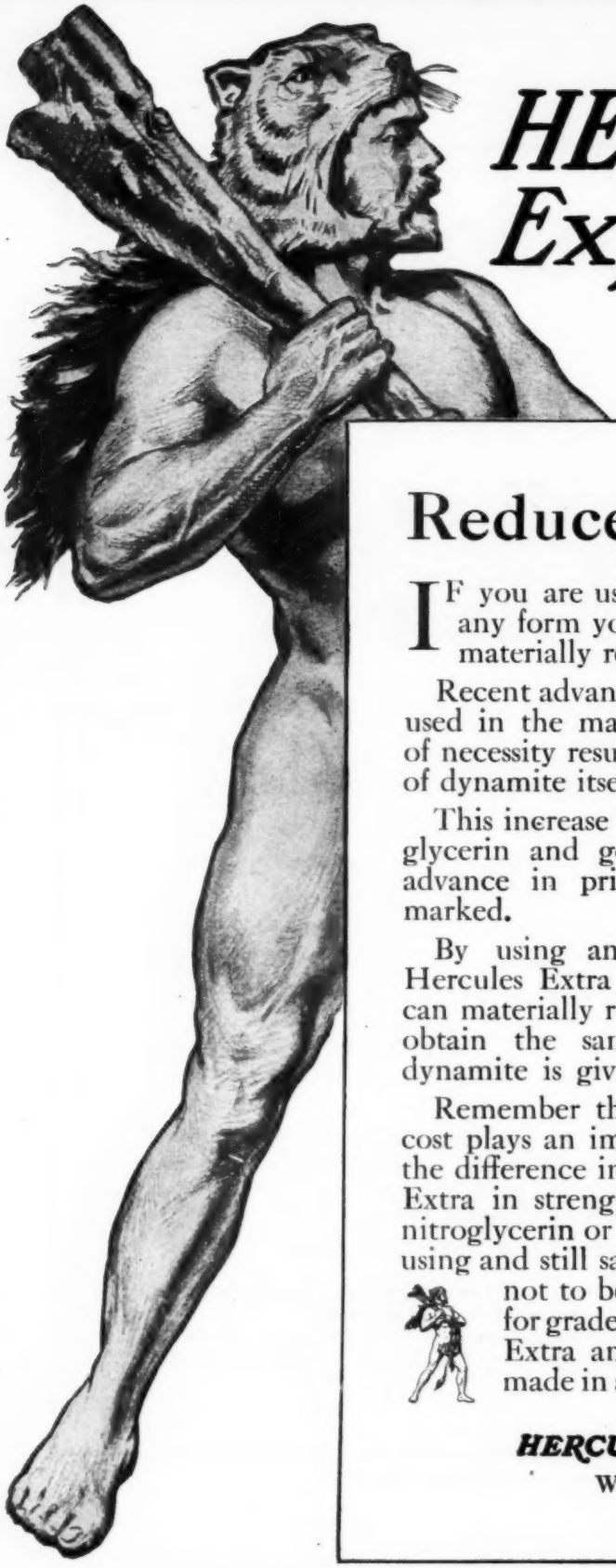

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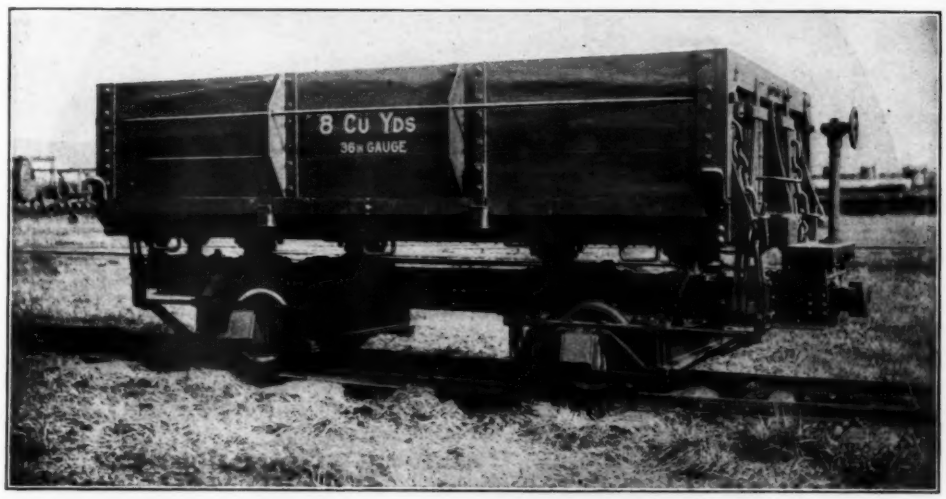

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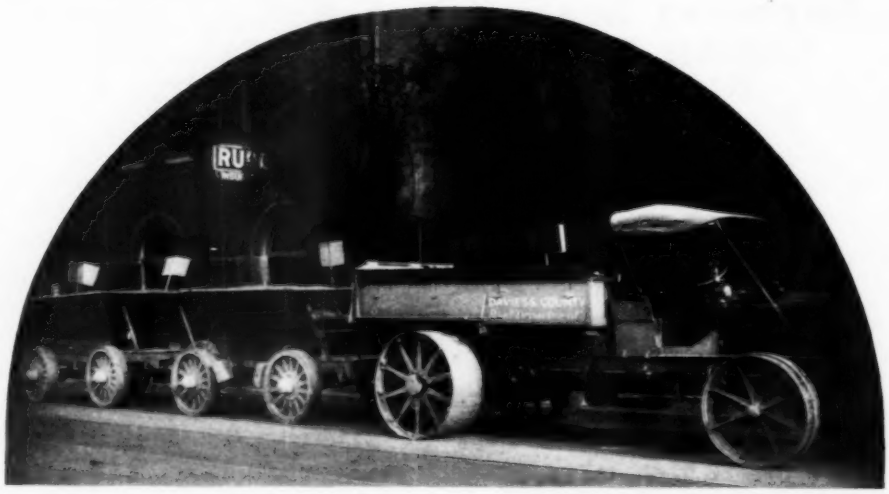

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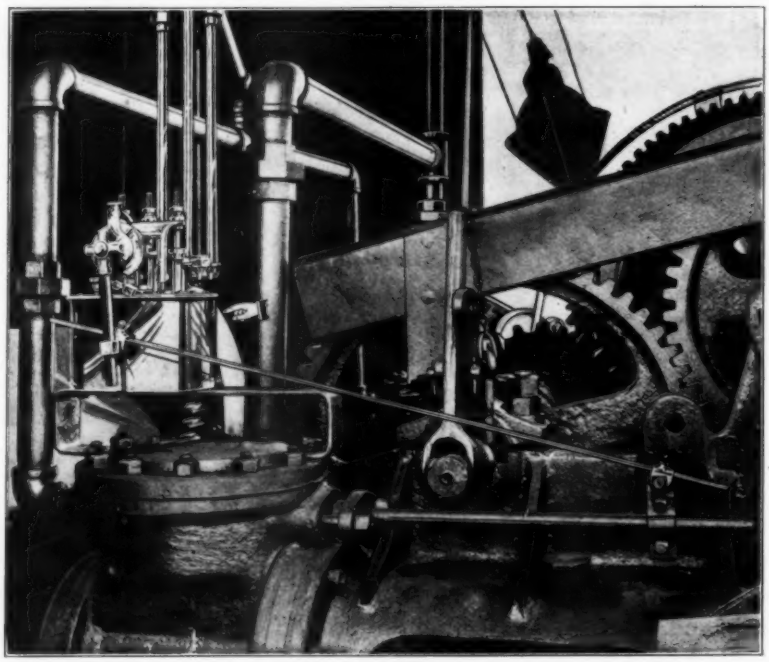

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The Harper trucks cover about 30 miles a day. Each 5-ton truck carries more than twice the load of a two-horse wagon and over the same haulage distance makes three to four trips to the wagon's one.

The above illustration shows one of Mr. Harper's 5-ton trucks under a yard-and-a-half clam shell bucket. The truck backed, loaded 4 yards and was under way in three minutes. It will have the load dumped 2½ miles away in 20 minutes and prevent a tie-up on the job for want of material. The truck can handle sand or stone from the same bucket. The White body is wide and receives 4 yards of gravel from a bucket without spillover that marks the loading of wagons.

The truck user who has never had experience with a White Truck can very profitably heed the example of prominent contractors like Mr. Harper who know what a given truck is worth and who buy Whites in preference to any cheaper make.

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First Cut, Main Line to Left

Second Lift, Main Line Lowered

Final Cut, Note Industrial Spur to Right

The Excavating Engineer

Vol. 12 JUNE, 1916 No. 9

Chicago, Milwaukee & St Paul Ry. Track Depression Work in Minneapolis

The H. & D. Division of the C. M. & St. P. Railway recently completed an extensive track depression in Minneapolis, which has called for the excavation of about 900,000 cubic yards. Details of operation.

THE C. M. & St. P. Ry. has recently completed an extensive piece of track depression work in Minneapolis. This consisted in lowering the main tracks of the Hastings & Dakota Division for a distance of about three miles through a mixed residential and industrial section of the city. Work was started in the latter part of 1911, but was not pushed with the full organization until 1913.

The work was in compliance with a city ordinance which called for the elimination of thirty-nine street crossings at grade. The plan contemplated the depression of the track and the erection of thirty-seven bridges to carry the traffic overhead. One street was closed and another, which originally was carried under the tracks in a sub-way, now crosses at grade.

The tracks are being lowered to permit headroom of 18½ feet under the bridges. This necessitated a cut which averaged about 22 feet in depth. The total excavation was about 900,000 cubic yards and consisted of sand and gravel. A 65-ton Bucyrus steam shovel was used, equipped with a 2½ cubic yard dipper. The excavated material was hauled to Bass Lake, where it has been utilized for the construction of a freight yard.

As stated, the depression was through a built-up residence district with numerous industrial plants scattered along the line of work. The problem of providing industrial spurs for these plants was at first a troublesome one. The original plan called for a two-track depression, but it was found necessary to increase this to three tracks in order to connect with the industrial spurs and permit the necessary switching without interference with the main line.

Steam Shovel Work

The work was done by the operating department of the railroad with company forces. The method of shovel operation was not unsual. The total depth of the cut was made in from 5 to 7 cuts, depending upon the depth carried. These cuts were generally carried for a stretch of about eight blocks at a time. The usual method of procedure was to use one track as a loading track while the shovel was making as deep a cut as possible to one side. This usually averaged about 8 feet. When this cut was completed to the required distance, a new track was laid here and used as a loading track while the shovel was shifted to the other side.

As stated, the shovel used was a 65-ton Bucyrus equipped with a 2½ yard dipper. This shovel was shipped from the manufacturer's shops in the spring of 1907 and has been in steady service for the past eight years. In connection with this shovel, three dirt trains were used consisting of 25, 12-yard Western air dump cars. Each train was hauled by a class C-2 (2-8-0) locomotive.

We give below a statement, prepared by J. G. Wetherell, assistant engineer who was in direct charge of the work, for the operating department, for shovel operation from April 19th to July 23rd.

Total amount of excavation for season 195,908 cu. yd.
Total number of days shovel worked.....82
Number of cuts shovel made.....8
Total distance shovel excavated (total length of cuts).....16,076 ft.
Average distance excavated per day shovel worked.....196 ft.
Average number of hours shovel worked per day.....8.80 hr.
Total number of cars loaded.....17,107
Average number of cars loaded per day.....208.6
Average number of cu. yds. per car....11.46 cu. yd.
Average number of cu, yds. excavated per day 2389.1

Average distance excavated material hauled 5.28 mi.
Greatest excavation for 1 month (June) 72,934 cu, yd.
Average daily excavation for June.....2805 cu. yd.

Delays amounted to 12% of the total time, distributed as follows:—

3.4% moving shovel from one cut to next.
5.3% no cars, due to trouble at the dump or to main line being used for other purposes.
1.3% rain.
0.2% shovel breakdowns.
0.8% derailments in cut.
1.0% miscellaneous.

About 500 men were employed on the work. Of this number, from 250 to 300 were used on the bridge construction. The work was done under the general direction of C. F. Loweth, chief engineer of the C. M. & St. Paul R. R., W. R. Powrie being the district engineer in direct charge. G. A. VanDyke was superintendent of terminals and Claus Lind, roadmaster. The shovel was operated by Fred C. Lanz, engineer, Richard Frick, cranesman, Alonzo Suttman, fireman and Clarence Suttman, watchman. Eight pitmen were used in connection with the shovel.

Heavy Basement Excavation in Milwaukee

Concrete foundations, walls and heavy frost combine to make heavy digging. Revoling shovel work on the Plankinton Block.

BASEMENT excavation by revolving shovel under the most severe conditions has recently been well exemplified in Milwaukee. The block formerly occupied in part by the Plankinton House, between West Water and Second Grand Avenue and Sycamore Streets, Milwaukee, is no longer recognizable as a landmark.

All of the buildings which formerly occupied this block have been wrecked The north half of this block, that facing Grand Avenue, is to be occupied by a building known as the Plankinton Acrade. The new Plankinton Hotel will be built on the southeast corner.

The Bucyrus shovels had the hardest possible

At work on the basement for the Plankinton Arcade in Milwaukee. 18-B and 14-B Bucyrus shovels in operation. Observe the heavy character of the digging and also the buildings being wrecked in the background.

conditions to contend with, but no difficulties were encountered which were not successfully overcome. Besides having to buck heavy frost, the shovels had to tear away heavy stone foundations, walls and miscellaneous wreckage. Owing to the proximity of buildings, powder could not be depended upon. Consequently, high outputs were impossible and the task of the shovels was made the more difficult. Most of the material was hauled by 40 teams about a mile and a quarter to the elevation work of the Chicago and Northwestern Railway at the foot of National Avenue.

Mr. Manger personally superintended the work and much credit is due him for its efficient prosecution. Robert M. McGucken was foreman in charge. The 14-B was operated by Charles Camack, the 18-B by Charles Porter and the Marion was run by John Fillinger.

The work for these two buildings is being done under two separate contracts by the Raulf Construction, which sublet the excavation to the Arthur Manger Company of Milwaukee.

The excavation for the hotel has been completed and the work of construction is underway. The excavation for the Arcade was started on January 1st of this year. The yardage amounts to about 25,000 yards.

Mr. Manger rented for the work, a 14-B, 5/8-yard and an 18-B, 7/8-yard Bucyrus revolving shovel. These two machines did the greater part of the work, but were released about April 1st when a Model 28 Marion was moved from the hotel excavation then just completed.

Good Roads and their Possibilities

A new and powerfull force behind the good roads movement, is the growing use of roads for the handling of freight. Freight handled over good roads will unquestionably be another method by which the railroads will be obliged to meet competition and consequently lower haulage rates. In olden days it was the canal that was used to transport freight, later the railroads came into play and in most cases, took all, or practically all, of the business away from the canals, which have been maintained mainly for the purpose of keeping the railroad rates within reason. New York State is now completing a new canal at a cost of many millions, which was voted for by the people of that state with the expectation that they were going to keep the freight rates down, but at the present time, although this canal is nearly completed, there has not been a boat built to put upon it that will carry the capacity load.

In the West, the state of California is spending many millions on good roads. Indeed, the Pacific Coast states seem to have realized to a greater degree than any other part of the country, the value of good roads for this purpose. The motor truck is being used in a great many places to transport freight from one town to another, and the day is not long distant when we will see wagon trains drawn by powerful motors along these great highways. The Tri-States Good Roads Association, which includes the states of Washington, Oregon and California, has recently published their 1915 Annual Review, which has many articles of interest on the building, costs and maintenance of highways in many countries.

This suggests a question; are the roads that are now being built heavy enough to stand this growing traffic? Another problem that the PacificCoast is finding out, which should have its bearing on the construction of future roads, is their width. A great many of the roads are not wide enough to allow the passing of three machines at once and with the growing use of the motor truck and the automobile in business, as well as the auto buses running between towns, it is essential to have roads wide enough to accommodate the passage of three machines at once. In most cases the heavy trucks take the outside edge of the road, when the third machine tries to pass, it crowds the truck to the edge of the road and either crushes down the shoulder or else breaks the edge of the sub-base, which is costly to maintain. One method in use is to build the road with concrete base sixteen or eighteen feet wide with crushed stone shoulders or tarred macadam shoulders. This looks very well to begin with but does not last very long under heavy traffic and the two types of construction cannot be bonded together to make a satisfactory job.

The Good Roads Annual Review for 1915 mentioned above can be obtained from Mr. Geo. E. Boss, 542 Phelan Building, San Francisco, Cal. at postal rate of 15 cents.

I wish I was a little rock
A'settin' on a hill,
A'doin' nothing all day long
But just a ' settin' still.
I would'nt eat, I would'nt drink,
I would'nt even wash,
I'd sit and sit a thousand years
And rest myself, by gosh!

When a man ain't got a cent, an' he's feeling kind of blue,
An' the clouds hang dark and heavy, an' won't let the sunshine through,
It's great thing, O my Brethren for a feller just to lay
His hand upon your shoulder in a friendly sort of way.
It makes a man feel queerish; it makes the teardrops star,
An' you sort of feel a flutter in the region of the heart;
You can't look up and meet his eyes; you don't know what to say,
When his hand is on your shoulder in a freindly sort of way.
Oh, the world's a curious compound, with its honey and its gall,
With its cares and bitter crosses—but a good world after all;
An' a good God must have made it—leastwise that is what I say,
When a hand is on your shoulder in a friendly sort of way.

—*James Whitcomb Riley*

Repairing a Bad Break in the Mississippi River Levee System

How the Fourth District of the Mississippi River Commission did some rapid work at Point Pleasant, La.

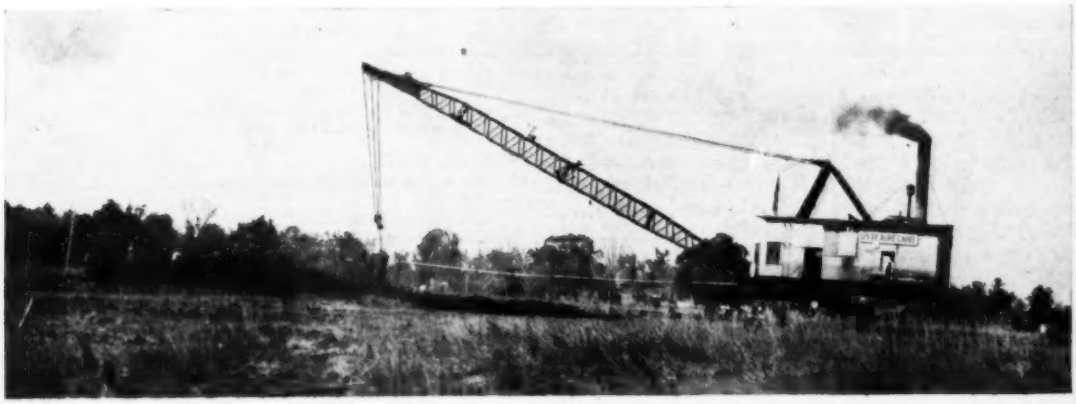
ON February 15th of this year at 3:30 in the morning, there was a serious break in the Point Pleasant, La. levee. Before this break could be repaired, five parishes had been inundated. The story of how this break, which came to be called the Buck Ridge Crevasse, was repaired by the Mississippi River Commission just in time to prevent a second inundation, could be made excellent timber for a short story magazine.

A sandy point of land known as Point Pleasant, under normal conditions, thrusts itself into the path of the Mississippi River half way between Vicksburg, Miss. and St. Joseph, La., making the stream take a wide loop to the east. This is one of a large number of examples of the many migrations of this great river, as the loop had previously been to the west. The building of a levee at this point has kept the river from going back to its old channel. This levee follows the present course of the river far inland, doubling itself into a long narrow finger up the spine of Point Pleasant, leaving several square miles of marshy lowlands to the south of the levee which are flooded at high water.

During high water, the pressure against the levees is enormous. During the year of 1915, the water of the Mississippi River was continuously higher than it has been since records have been established. This continuous high water caused saturation of the levee foundations in a great many places. Where the foundations are composed of heavy material this saturation is not very dangerous. At Point Pleasant the foundation being composed of sand the saturation resulted in the gradual sinking of the foundation and when the crest of the high water reached this point, the foundation gave way and the breakage occured.

The break occured at about the middle of the southern swing of the levee, at a very difficult point to approach from the river when the water is down. On March 15th the river had receeded sufficiently to make it possible to start work on draining the crevasse. A fleet of two orange-peel and two dragline excavators had been taken on barges to the most available landing place on the north side of the point about 2000 feet from the levee. The orange-peel excavator, the *U. S. Barrataria*, a machine with a 72-foot boom, was set to work cutting a channel from the river to the levee. It was followed by the *U. S. Buras*, a 120-foot orange-peel machine (which can be converted into a dragline), the *U. S. Beauregard*, a 125-foot Bucyrus dragline (convertible into an orange-peel machine), and another rented dragline of smaller size, in the order named.

When the levee was reached, they were taken from their barges and tracked under their own power three miles across the point to the break on the southern side. Despite the fact that this land contained a considerable amount of quicksand and had been under water a short time before and consequently was very soft, the trip was made in six



"U. S. Beauregard," class-180 Bucyrus dragline throwing up the protection levee. Observe that no effort is made to trim slopes.

days. Another difficulty met with, was the fact that the track gauges of the four machines were different and consequently it was necessary to lay track independently for each machine.

In the meantime, conditions in the upper river convinced the engineers that another serious rise was on its way, and all possible speed was necessary in order to complete this repair in time to prevent a second catastrophe, which undoubtedly would have ruined the farmers in the vicinity.

The river had torn away 2080 feet of levee. The break had been started by an under-mining action and the result, after the water receded, was a small lake scoured 80 feet deep in places. It was impossible of course to built a new levee straight across the crevasse, so the excavators were at once started constructing a temporary protection levee about 10 feet high, running in a big semi-circle around the newly formed lake. This temporary embankment was 3400 feet long and was completed in six days, the machines working three eight hour shifts. The gap was closed just in time to keep back the high water which had been anticipated.

This completed, the Bucyrus dragline *U. S. Beauregard* and the orange-peel machine *U. S. Buras*, now converted into a dragline excavator, started work on the new levee. This was built to standard specifications and government gauge in a semi-circle just outside the protection levee. The two machines started in the middle and worked away from each other.

Including the muck ditch and the removal of some deposits of sand from the new foundations which was necessary before the construction was actually started, the excavation called for the moving of upwards of 500,000 cubic yards.

The crevasse. The arrow indicates the opposite end of the levee which was carried away. The newly formed lake is to the left.

The Mississippi River Commission should be complimented for this successful fighting of the high water during the year of 1916. It can safely be said that if it had not been for their efforts the high water danger would not have past, and the levees would have given way at several points.

Major W. G. Caples is the U. S. Engineer in charge of the Fourth District under which this work was done. W. E. Knoblock, assistant engineer, W. C. Barton, junior engineer, W. T. Newton, superintendent of machines, were in active charge of the work. The inspectors over the three larger excavators were F. R. Duvic, J. M. Crawford and J. R. McDaniels. The operators were as follows:—

U. S. Beauregard, John Sprout, J. P. Roberts and A. Le Blanc.

U. S. Buras, Chas. Birchel, F. Hingle and Ed. Simms.

U. S. Barrataria, Wm. North and H. Orr. E. Gilles was chief clerk.

The protection levee has been completed. The "U. S. Beauregard" is just starting on the permanent levee. The lake may be seen on the right

Shovel Work on the Southern Railway Revision in North Carolina

High shovel outputs have been made on the Greensboro-Brown Summit revision of the Southern Railway in North Carolina, which was completed on July 31st, 1915.

ON July 31st, 1915, the Morrow Construction Co. of Atlanta, completed their North Carolina contract on the Southern Railway. This contract called for curve elimination, grade reduction and double tracking on the main line of the Southern Railway, between Greensboro and Brown Summit, N. C., a distance of about ten miles calling for the excavation of about 450,000 cubic yards of quite heavy material.

The Morrow Construction Company's 60-C Bucyrus shovel completing a 60,000 cubic yard cut on the Southern Railway revision near Greer, So. Carolina. The shovel is loading 6-yard Western cars. This machine loaded 422 of these cars in seven working hours.

The work was divided into two portions, the Brown Summit end consisting of 75,000 cubic yards, was handled by the Morrow Construction Co. themselves, with a 40-C Bucyrus shovel equiped with a 1½-yard dipper, two 12-ton Vulcan locomotives and four-yard Oliver cars. Work was started in October 1914. The 40-R gave a very good account of itself on this work digging in the month of November 1914, 23,000 cubic yards in 21 days of ten hours time, an average of 1095 cubic yards per day. In making this output, two trains of seven 4-yard cars each were used, the average haul being about 4000 feet. The shovel was operated by Chas. Depew, craned by J. D. McKenney and fired by W. A. White.

The Greensboro end of the work, entailing 375,000 cubic yards of excavation, was sublet to the Henderson Contracting Company who used the equipment belonging to the Morrow Construction Company. This consisted of a 60-C Bucyrus shovel with a 2½-yard dipper, one 16-ton Davenport locomotive, one 18-ton Manhattan type locomotive and 6-yard Western cars.

The chief difficulty which confronted the contractor in making rapid progress on this work was the fact that the cuts were well scattered, and consequently much time was consumed in moving the equipment. Furthermore, during the winter, the output was cut down somewhat by wet weather and sticky material of which a great part of the digging consisted. On this part of the work there were five cuts, the deepest being 43 feet, one 37 feet, one 35 feet and two 18 feet. Three to six lifts were necessary to each cut. In the deep cut, two extra lifts were made necessary by the fact that it was found essential to borrow extra material from both sides of the cut for use in making extra fills which will be described later on. The haul varied from 100 feet to a mile and a quarter.

The crew of the Morrow Construction Company's 60-C Bucyrus shovel on the Southern Railway revision at Greer, So. Carolina. The men standing on the running board reading from left to right are C. E. Lominoc, cranesman, T. B. Black, engineer and W. P. Gann, fireman.

According to Capt. Henderson, this shovel in November 1914 dug 41,000 yards in 20 days, or an average of 2,050 cubic yards per day of ten hours. During this time two trains of six, 6-yard Western cars each were used, the average haul being about 3000 feet. The highest daily output was 422 6-yard

cars in ten hours, three of which were lost waiting for cars.

The excavated material was used for making a trestle fill. This trestle was built over Reedy Fork swamp. At the time that this trestle was put in, the swamp was dry. The original trestle was 10 feet high. When this was filled, another trestle was built to grade. As it happened, this was done just in time as during the rainy season, the swamp was completely flooded. The soft bottom which here existed gave considerable trouble and caused many slides. Consequently, it was necessary to borrow extra material from the big cut, as before described. This extra material was dumped into the fills until this sliding stopped. The fill was eventually made 100 feet wide on the crown.

E. M. Alexander was superintendent on this section of the work, from August until February 22, 1915, his place was then taken by W. L. Wade. John Godfrey was foreman on the dump. The 60-C was first operated by Sam Alread who is said to hold the world's record made in a slag pit in Alabama, and craned by Walter Austin. Later, however, it was operated by T. B. Black, craned by M. E. Kennedy and fired by W. P. Gann. T. B. Black began operating this shovel on January 1, 1915, and raised the one day record output from 355 cars to 422 cars as noted.

Tunnel Work with Air-Operated Shovels

Successful Operation of four 1½-yard air-operated shovels on the Allegheny Division of the Pennsylvania Railroad.

The Allegheny Construction Company of New York, Arthur McMullen, president, completed an interesting contract last summer for the construction of the Woodhill and East Brady Tunnels on the Allegheny Division of the Pennsylvania Railroad in the northern part of Pennsylvania.

An interesting feature of the work from the excavation standpoint was the use of four air-operated shovels for the mucking. The shovels used were two Bucyrus 40-R's and two Marion Model 41's. Work was started on March 13th, 1913, and was finished during this last summer.

The conditions encountered in both tunnels were approximately the same. One Marion and one Bucyrus shovel were used at either end of each tunnel. The material encountered in the opinion of old tunnel men, was extremely difficult to handle. It consisted for the most part of soapstone and sandstone. This was of a consistency which crumpled rapidly when exposed to the air. The tunnels were driven by the usual top-heading method, by hand. The benches were shot and mucked by the shovels, one, as stated, working in from each end of the tunnel. The bad formation made it necessary to carry the timber close to the heading. 12-inch by 12-inch ribs were used, 3 feet apart, an advance of about 24 feet per week being made.

On the Woodhill Tunnel, the air for the shovels was provided by two Ingersoll-Sargent and one Chicago-Pneumatic air compressors. The Bucyrus shovel worked in from the Woodhill end on a grade of 2 inches in 100 feet.

The material was loaded into two, 6-car trains for each shovel. Western 4-yard cars and 18-ton Vulcan locomotives were used. Conditions of course did not allow large outputs, but the 40-R averaged about 200 yards per day, working about 6 hours. The material was dumped along the river bank outside of the portals. It was found that the

The Allegheny Construction Co's. 40-R Bucyrus in the mouth of East Brady tunnel.

40-R shovel was very quick in operation even on 40 pounds of air and could do a great deal of work at this low pressure. At 100 pounds pressure, however, it was able to handle everything that it encountered.

The concreting of the inside of the tunnel was done by the blower system.

The shovels on the Woodhill Tunnel were operated by Daniel Rooney on the Marion and Ed Fernstermacher on the Bucyrus. The cranesmen were G. L. Rice and Jack Cain. At the East Brady Tunnel, the Bucyrus was operated by W. House and craned by M. Lorenz, and the Marion by Ed Fernstermacher and L Currans. Fernstermacher was transferred to the Bucyrus after the Wood Hill Tunnel was completed.

Excavating for the Ocean Avenue Speedway at Deal, New Jersey

In cutting, ranging from 9 to 18 inches deep, a revolving shovel is making 200 lineal feet advance per day, loading wagons.

THE Shreffler-Burns Company, general contractors, of Newark, New Jersey, have recently completed an excavating and paving job on Ocean Avenue, Deal, New Jersey. This work is for a speedway, said to be one of the best in this part of the country.

The contract called for about 1.6 miles of work, including 30,000 cubic yards of excavation no deeper than 18 inches. The paving consists of 7 inches of concrete, covered with 3 inches of sand over which is placed a pavement of Mack brick.

The contractors are using a 14-B Bucyrus shovel equipped with a ⅝ cubic yard dipper. The material is, for the most part, gravel. This job, as the shovel runner Al. Geddes puts it, is a question of mileage rather than yardage. But we give below a statement of daily yardage for the days on which the shovel worked from October 1st to and including December 10th, 54 days in all. Included in this time there were 25½ hours during which the shovel did not work because of rain of other reasons, or a little over three working days of 10 hours each. It will be seen that the shovel moved 17,704 cubic yards in the 54, 10-hour days or, including the time it was not working, an average of nearly 33 cubic yards per hour. The highest daily yardage was 477 cubic yards in 10 hours.

Loading wagons on Shreffler-Burns' job at Deal, N. J. The level floor shown was made entirely with the shovel, a ⅝-yard Bucyrus 14-B type. The mixer followed close behind the shovel.

Oct.	1,	1915	Rain—worked 3 hours	93 yards
"	4,	"		291 "
"	7,	"		301 "
"	9,	"		309 "
"	11,	"		304 "
"	12,	"		400 "
"	13,	"		427 "
"	14,	"		323 "
"	15,	"	6 hours work	182 "
"	16,	"		411 "
"	18,	"		310 "
"	19,	"		309 "
"	20,	"		308 "
"	21,	"		288 "
"	22,	"		468 "
"	23,	"		442 "
"	25,	"		466 "
"	26,	"		390 "
"	27,	"		373 "
"	28,	"		452 "
"	29,	"		302 "
"	30,	"		304 "
Nov.	1,	"		477 "
"	2,	"		386 "
"	3,	"		411 "
"	4,	"		414 "
"	5,	"		362 "
"	6,	"		311 "
"	8,	"		305 "
"	9,	"		389 "
"	10,	"		463 "
"	11,	"		354 "
"	12,	"		382 "
"	13,	"		327 "
"	14,	"		396 "
"	16,	"		381 "
"	17,	"		385 "
"	18,	"		358 "
"	22,	"		389 "
"	23,	"		394 "
"	24,	"		393 "
"	26,	"		396 "
"	27,	"		194 "
"	29,	"		387 "
"	30,	"		428 "
Dec.	1,	"	5½ hours work	204 "
"	2,	"		250 "
"	3,	"		142 "
"	4,	"		279 "
"	6,	"		256 "
"	7,	"	½ day's work	117 "
"	8,	"	2 hours work	26 "
"	9,	"		211 "
"	10,	"	½ day's work (Last day).	84 "

J. V. LAYTON, (Time-Keeper)
257 Branchport Ave.,
Long Branch City, N. J.

Note the canvas front to protect the operator from cold winds.

This was not a question of yardage as stated, as the cut was shallow and the conditions not favorable to high outputs. The haul averaged about a half mile which made it necessary for the shovel to wait for wagons at times from two to three minutes.

In 9 days two blocks 700 feet long and 50 feet wide were cleaned up. Again, in one week, in a cut running from 9 to 18 inches deep, an advance of 200 feet per day was registered or an average of about 350 cubic yards per day, which as Mr. Geddes says is "hitting the ball on the nose".

The level floor illustrated in one of our views was made entirely with the shovel, a Koehring mixer following immediately behind the excavation.

This shows how shallow the excavation ran. In spite of this the shovel dug an average of 33 cubic yards an hour for 54 days, in a cut running from 9 to 18 inches.

From another of our views, it will be seen that the front of the shovel is covered with a canvas front. This was done to protect the operator from cold winter winds.

The shovel burnt a half ton of soft coal in 10 hours. It was operated, by Al. Geddes, as stated, and fired by Cris. Widdis. The contractors used a Koehring mixer and a 10-ton Buffalo-Pitts roller on the paving.

Time and Labor Saving Methods

By F. W. Wilson

Contractors have not as yet awakened to the advantages of blasting to reduce costs and save time.

Recently some road contractors in Iowa were struggling with the problem of opening a gravel pit out of which they expected to secure the gravel needed for about three and a half miles of road. The pit was located in a steep hillside and it was very difficult to work teams on it. The stratum of gravel was covered by about sixteen feet of sticky blue clay. Some of this top material had been removed by teams but stumps and a ledge of flint rock made it impossible to proceed further with the work. It was also necessary to remove about two thousand yards of earth in order to get at the gravel.

At this point, Mr. Clyde H. Albrecht a professional blaster, was called in on the job. He put down a row of holes about twenty feet apart and about ten feet back from the face of the pit, loading the holes with 250 pounds of dynamite. The result of the shot was the bringing down of nearly two thousand yards of the material in a shape that was very easy for the shovelers to handle.

Practically the same problem arose on a job near Riverside, New Jersey, recently. A crew of six men was employed in picking down gravel and loading it on wagons. Of course, the loaders were unable to keep up with the teams, however, and a great deal of time of drivers and horses was wasted standing in line waiting their turn to be loaded. The contractor called in a professional blaster and this man alone was able to bring down the earth for the loaders fast enough to keep the teams moving steadily without loss of time and it was possible to dispense with the services of the six pickers altogether. The wages of the blaster and the cost of the explosives didn't nearly equal the wages of the pickers.

This is a subject which contractors could well study to their own financial advantage.

For the second time in ... Company's plant at Butler, C... in a dam in the San Gabriel ... been nearly submerged.

In the spring of 1914 the ... and illustrated in the Excava... the water came up so unexp... the shovel.

This occurence was rep... herewith a number of views ... time. We are advised that the ... damage done was a broken ...

In order to avoid the re-... has decided to change the loca... now being dismantled for re-...

These photographs were ... Texas. They illustrate a 70-... Kansas and Texas, at work ... Antonio, Texas. On the day ... February 22nd, this machine ... shovel was loading earth and ... show a large number of big ... too big to go through the dump ... and loaded on to flat cars as ... was lost due to this and also to ... cars was in use with a one-mile ... with about two hours of delay ... Coffelt, craned by S. S. Burch ... conditions, this may be consid...

The photograph ... class-45 Atlantic ... into a crane for ... Kensico Dam of ... The shovel is ... Inc. When the ... tional crane, Geo... tendent, made ... was idle at the time ... dard boom and ... timber boom. It ... material trimmed ... and for service in ... blocks from the ... in the concrete ...

R. H. & G. A. ... Bucyrus dragline ... a 45-foot boom and ... building levees on ... District near Quan... Kinzel is general ... the work and L. H. ... tendent. The dra... 10-hour shifts and ... Pearson and J. B. ... pany have a 5-... dredge working on the ...

ne in t…r, the Pacific Rock and Gravel
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briel I… their 60-C Bucyrus shovel has
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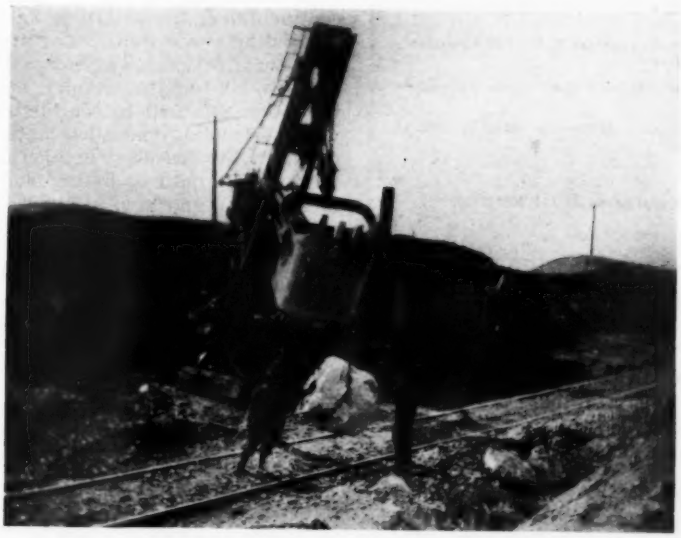
r re-o… …at Azusa.



were … …as by M. C. Coffelt of Austin,
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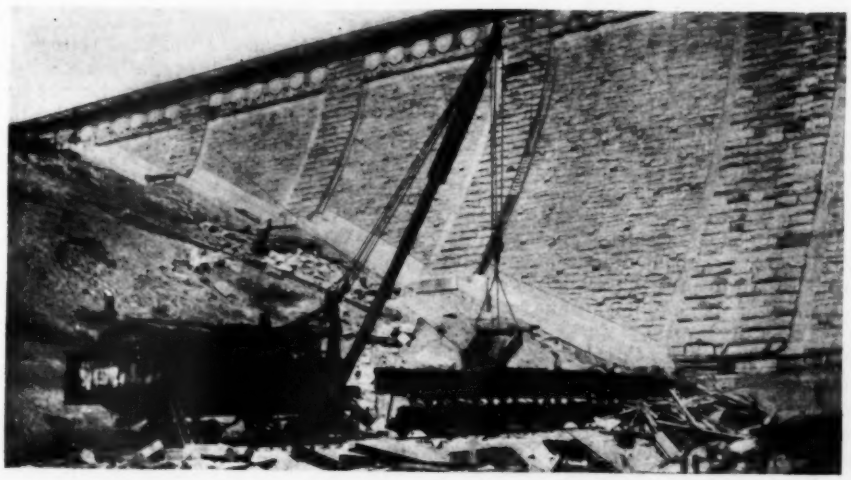

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for w… …contract 9 of the
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s ope… …y H. S. Kerbaugh,
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Geo… …. Angell, superin-
e su… …this shovel which
e tim… …replacing the stan-
d dip… …handle by a 55-foot
It w… …ased for handling
med … excavation slopes
in m… …finished concrete
e fro… …to the storage piles
blad… …rd.

. A. M… …Williams' class-9½
ne o… …ator equipped with
and … …cubic yard bucket
on th… …outh Quincy Levee
Quin… …Illinois. F. M.
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. H. P… …eterson, superin-
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3-yd… Bucyrus dipper
on the same project.

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Bradlee Van Brunt, Manager and Editor

267 National Avenue Milwaukee, Wis., U. S. A.

Construction Outlook

With general business conditions still maintaining a remarkable advance and with exports mounting to higher and still higher levels, we still see no great improvement or promise for improvement in the railroad construction field. It seems quite well settled that the railroads will postpone for the forthcoming season, their larger projects and will devote their attention to minor reconstruction and realignment jobs. A number of such jobs made their appearance during the past month notably in Montana, Washington, Ohio, West Virginia and Georgia. This condition seems to be due to some degree to the rapidly advancing cost of materials, to the uncertainty of the market and to the lack of labor. A bright spot on the situation is the growth of confidence in the speculative market, for since the extreme tension due to the submarine controversy has been somewhat relieved, the demand for railroad and municipal securities has greatly improved. Many large municipal jobs have been let and many more are in prospect while drainage, irrigation and road construction continue strong.

The Canadian Overseas Railway Construction Corps

There is in service on the battle front in France and Belgium, a splendidly organized corps of Canadian engineers, contractors, steam shovel engineers, cranesmen and others whose activities should be followed very closely from now on by engineers and contractors throughout this country.

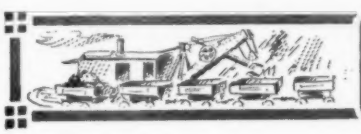
The Canadian Overseas Railway Construction Corps was organized by Mr. C. W. P. Ramsay, engineer of construction for the eastern lines of the Canadian Pacific Railway. One of the leading spirits in this movement was Mr. C. L. Hervey, a well known contractor in Canada. Mr. Hervey has had long experience in the line of reconstruction, having been actached to the United States Engineering Corps that put Cuba in order after the Spanish-American war. Messrs. Ramsay and Hervey succeeded in recuiting a body of construction men who had been employed by the Canadian Pacific, Transcontinental & Great Trunk Pacific Railways, and many others who were known to be experts in railroad construction. The Corps is composed of contractors, civil and mechanical engineers, office men who were attached to contracting outfits and railway construction offices, locomotive and steam shovel engineers, cranesmen, firemen and track layers. It would be hard to find a more efficient body of men for this purpose, as they all came fresh from experience on the big jobs of Canada. The corps was mobilized and trained at St. Johns, New Brunswick and sailed for England under the command of Lieutenant Colonel Ramsay. During the mobilization, lists of equipment were prepared by several members of the Corps and revised until these lists provided for every possible emergency. At the time of sailing, they took with them, only small tools for track laying and repairing. Subsequently, steam shovels, locomotives, pile drivers and other heavy equipment have been secured from railroads and contractors throughout Canada and have been shipped to them.

Little has been published in the papers as to what they have accomplished, but from what we have been able to learn, although not a fighting unit, they have evidently been "doing their bit". Many miles of track to strategic points have been built and much of the work has been under fire. Eighteen of the first contingent have already received commissions in the Royal Engineers and Lieutenant Colonel Ramsay and Major Hervey have both been mentioned in despatches from the front.

A wounded soldier who recently returned to Canada from the firing line, tells a story which throws a little light upon their activities. He tells of being awakened one morning in or near the trenches by the sound of a locomotive bell, and found near him a locomotive marked "Canadian Pacific", which had just pulled in on a side track while he had been sleeping, with supplies from the rear.

Recently Lieutenant Colonel F. L. Wanklin, the general executive assistant of the Canadian Pacific

(Continued on page 345)



· FIELD NOTES ·

QUESTIONS pertaining to the operation, maintenance or repair of excavating machinery will be answered through this column. Address, Field Note Department, Excavating Engineer, P. O. Box 607, Milwaukee, Wisconsin.

Blasting Hints

Don't Spring Holes in Rapid Succession.

Springing holes in rapid succession is dangerous, sufficient time should always be allowed to elapse between successive spring shots and between the last springing shot and the final loading. This will allow the rock to cool. It is a good plan to wait over night after the last springing shot before the charge is finally loaded. Watch the loading gang closely in order to detect whether they are carrying matches in their overalls, pockets or hat bands. Many accidents have happened from matches accidentally falling into the holes when the men stoop over.

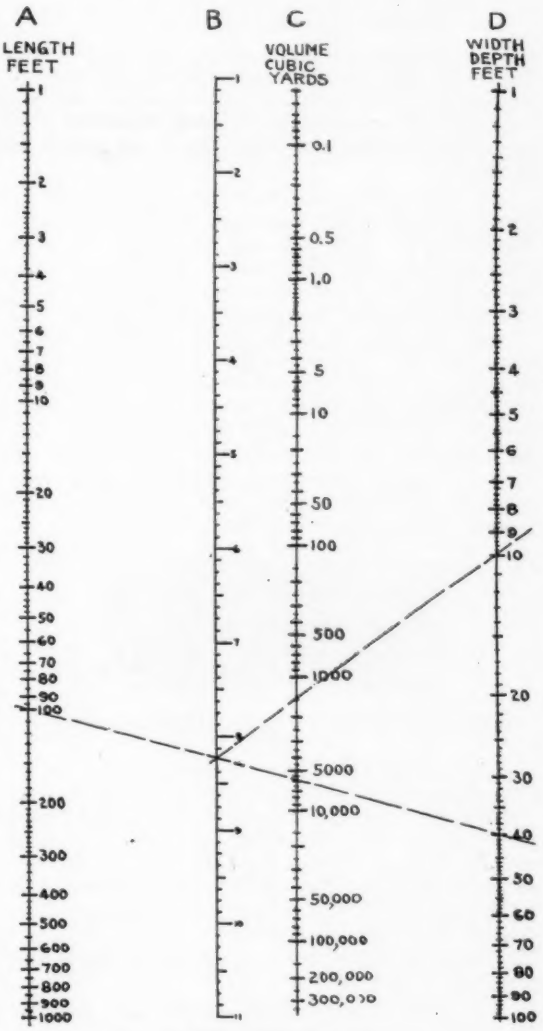
—*Du Pont Magazine.*

A Handy Excavation Chart

The chart which we publish with this article has been sent us as a simple short cut for determining the yardage of excavation without doing any complicated computing. The results obtained are of course not absolutely accurate, but we believe that this method is an excellent "rule of the thumb" method of getting at yardages. It will be noted that the above is arranged for excavations with straight sides. It only requires simple figuring, however, to adapt this to sloping excavations such as canals and railroad cuts.

The method of using this chart is as follows:—Suppose it was desired to find out how many cubic yards are contained in an excavation 100 feet long by 40 feet wide by 10 feet deep. Lay a straight edge or ruler from the point 100 on column A to 40 on column D and mark the intersection with column B (between 8 and 9). From this point of intersection, lay the ruler to the depth 10 on column D as is indicated by dotted lines on the chart. The volume, approximately 1500 cubic yards, is found at the intersection with column C.

In case two dimensions are the same, the volume can be found in a single operation. For instance, if the dimensions of the excavation are 100 by 40 by 40, we would have the straight line from 100 to 40 and the total volume will be found in column C to be very close to 6000 yards.



A Handy Excavation Chart

If we were measuring a ditch 100 feet long by 60 feet wide top width and 40 feet wide bottom width by 10 feet in depth, the above method would be modified by figuring the excavation 100 feet long by 50 feet wide by 10 feet deep in the same manner, as above described.

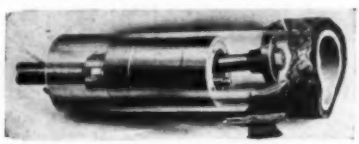
Photographic copies of these charts 10 inches high by 7 inches wide, may be obtained for $.60 each by writing the *Excavating Engineer.*

DEVICES YOU OUGHT · TO KNOW ABOUT ·

The Dean Vibratory Tube Cleaner.

Every engineer realizes and appreciates the vital importance of keeping his boiler tubes clean and free from scale. He knows that unless he does this, the tubes become overheated, burn out, warp and twist out of the headers and frequently cause disastrous explosions.

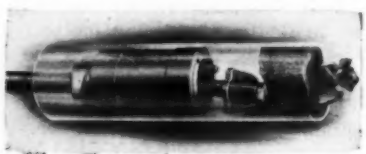
The first mechanical boiler tube cleaner was invented about twenty years ago by Cyrus Dean of Buffalo, New York. It was of course far more efficient than the old method of scale removal which consisted of running a chain through the tubes and then dragging that chain back and forth until it seemed as though the scale ought to be entirely removed. But it has the particular disadvantage of being adaptable only to water tube boilers, and no provision was made for taking care of fire tube boilers. He then set himself to the task of developing a tube cleaner that would produce better results than his first invention and that at the same time could be adapted to either water tube or fire tube boilers of every type and style.



The Dean Removing Scale from the Tube of a Return Tubular Boiler

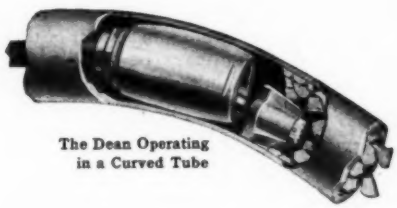
The result was the Dean vibrator, which possesses the unique feature of being adaptable for use in either water tube or return tubular boilers. By simply changing the vibrator head the cleaner becomes equally efficient in removing scale from the interior or the exterior of the tubes. While operating in water tube boilers it performs two functions at once, that is, while removing the scale from the inside of the tubes, it also removes the heavy accumulation of soot from the outside.

The Dean cleaner operates on the most powerful principle known to science—vibration. It is entirely free from any boring, scraping or other cutting or frictional action.



The Dean Removing Scale from the Tube of a Water Tube Boiler

The vibrator head might be likened to a power operated pendulum. Its effect on the walls of the tube is to create a sort of localized vibration or tremor, such as is caused in a bell when struck by the clapper. Owing to the difference in hardness and strength between hard scale and steel boiler tubes, the scale is physically unable to vibrate at the high speed of the



The Dean Operating in a Curved Tube

steel, consequently the surfaces in contact are separated from each other almost immediately, and a continuance of the vibration produces an internal disintegration of the scale, causing it to fall away from the tube surfaces in small pieces, which in the case of water tube boilers, are expelled from the tube by the exhaust air or steam which operates the cleaner. In the case of return tubular boilers, the scale falls in showers to the crown sheet.

This peculiar action renders the Dean tube cleaner particularly effective in removing scale from the corners, crevices, and joints which are difficult of access. In fact the Dean is the only tube cleaner that is absolutely efficient in removing scale from the headers and other places on or in the tubes where it accumulates thickly.

The tapping action which has a force of 2½ foot ounces, takes place at the rate of from 3500 to 10,000 times per minute, depending upon the size of the tool, and gives rise to a series of vibrations in the tube, which results in the scale automatically detaching itself from the surface. This vibratory movement is regulated to such a mechanical nicety, that at the highest possible speed the tube is not subjected to hammering in the usual sense of the word—a gentle tapping of high frequency being what actually takes place.

The Dean cleaner may be operated either by compressed air or steam, and requires between 40 pounds and 125 pounds pressure. For the average sizes of boiler tubes—3, 3½ and 4 inches—between 70 pounds and 100 pounds pressure is required. The tool may be operated without difficulty in any single fire tube boiler under its own pressure. This

is one of the reasons why it is so extensively used in cleaning the scale out of the boilers of steam shovels and dredges.

The Dean cleaner is manufactured by the William B. Pierce Company, Caxton Building, Buffalo, New York.

The Canadian Overseas Railway Construction Corps

(Cobtinued from page 340)

Railway, has organized a new force of 120 men who are to reinforce Lieutenant Colonel Ramsay's Corps. Most of this new draft were in the employ of the Canadian Pacific and nearly all come from the west. They are all practical railroad construction men and do not include any engineers. One man travelled 6000 miles to join. All the members are said to be above the average height and weight and physically are an exceptionally fine body of men. The corps is in charge of Lieutenant H. D. Sims, at one time an assistant divisional engineer at Vancouver.

The example of these men can well be followed at the present time in this country. We find a very well marked movement for industrial preparedness throughout the country. All manufacturing plants which have any possibility of manufacturing munitions or supplies, will soon be catalogued and their possible output recorded at Washington. Engineers of all kinds have been very active in organizing corps which could be of some service in time of need. This organization will without question include a number of corps similar to the one above described. It would be well if contractors and shovel men throughout the country would feel their responsibility in this connection and associate themselves with some organization which is preparing itself along these lines.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review in this column such books and catalogs as are sent to us. Books reviewed in these columns will be supplied by The Excavating Engineer Publishing Company at the prices named.

FERGUSON SEGMENT SEWER BLOCK:—Catalogue 4¾ by 6¾, 16 pages, illustrated. A description of the Ferguson Segment sewer block with an exposition as to its strong points. This catalogue is thoroughly illustrated with sketches and photographs and with displays of measurements, weights, various specifications and prices.

Evens & Howard Fire Brick Co.,
916-922 Market St.,
St. Louis, Mo.

TISCO, Bulletin 113-D, May 1916:—6 by 9, 24 pages and cover. An illustrated bulletin giving prices, full description and specifications of Tisco manganese steel chain, sprockets and conveyor parts.

Taylor-Wharton Iron & Steel Co.,
High Bridge, N. J.

THE SULLIVAN "DR-6", Mounted Water Hammer Drill:—Bulletin 70-C, May 1916. 6 by 9, 16 pages. A highly illustrated bulletin describing in detail and illustrating the above mentioned drill which is designed primarily for tunneling, but which may be used successfully for a wide range of mining, quarrying and contracting work. The weight of the drill is 148 pounds.

Sullivan Machinery Company,
122 South Michigan Ave.,
Chicago, Illinois.

TRADE NOTES

The Troy Wagon Works Company of Troy, Ohio, state that thirty-five different makes of motor trucks are pulling Troy trailers. This is undoubtedly a good indication of how greatly the efficiency of motor trucks can be increased by the use of trailers.

The Walter A. Zelnicker Supply Company of St. Louis announce that they have for sale, a supply of flat rails of forty-, seven pounds per yard, and sixty-seven pounds per yrard These are excellent for run-ways, car-barns, lumber camps wharves, etc. These are said to be practically as good as new, and are being sold at a low price in order to move them quickly.

The Walter A. Zelnicker Supply Company of St. Louis specialize in the buying as well as in the selling of steel sheet piling. They have a large tonnage of all sizes and lengths on hand in addition to machinery, locomotives and other classes of second hand contractors equipment.

The Goldschmidt Thermit Company have changed their main office from 90 West St. to the Equitable Bldg., 120 Broadway, New York City.

The Columbus Chain Company, of Columbus, Ohio, report to us that they are having an unprecedented demand for their "Hercules Solid Weld" Steam Shovel Chains this year particularly for stone quarry work. Their chains are so well made that they stand up under the severe service required on steam shovels in stone quarries, and the Columbus Chain Company tells us that if they once get a quarry contractor to use their "Hercules Chains," they have very little trouble in securing his future business.

The Hayden-Corbett Chain Company report a continued run of large orders for their hoisting chains, and they are still asking their customers to anticipate their wants as far as possible in order that they may not be disappointed in delivery.

The decision has been reached by the Board of Directors of the American Road Builders Association, to hold their next annual convention known as the 7th American Good Roads Congress and the 8th National Good Roads Show, in Mechanics Hall, Boston, Massachusetts, during the week beginning February 5th, 1917.

SHOTS FROM THE · FIRING LINE ·

Alabama

The New Orleans, Mobile & Chicago Railway has awarded the contract to C. G. Kershaw Construction Co., of Birmingham, Ala., for grading cutoff between Walnut and Brownfield, Miss., involving the handling of about 150,000 cubic yards of earth.

Arkansas

A contract has been awarded R. H. and G. A. McWilliams, Memphis, Tenn., at about $1,000,000 for constructing Cypress Creek drainage canal in Desha and Chicot counties.

California

Notes from Sunny California

By G. H. Hutchinson

James Willison of Modesto, Cal., was the successful bidder, and has secured the contract from the Anderson-Cottonwood Irrigation District for construction of tunnel and main canal.

F. H. Neilson of Orland, Cal., was awarded contract for bridges.

Balance of work is being readvertised and bids were opened on May 29, 1916.

Contract for the construction of improvements to the system of the Alpaugh Irrigation District has been awarded to Mc Clenahan-Kraner, Carter Co. Inc., Rialto Bldg., San Francisco for $165,000.00. They expect to use a revolving shovel with long dipper sticks for cleaning out canals and for new construction.

The Stony Creek Gravel Company of Orland, Cal., have completed the building for the housing of the gravel sorting department and the bunkers. Machinery has been installed, and the Company is prepared to fill many orders it has received for sand and gravel. Bunkers have a capacity of 800 cubic yards a day of gravel, which is sorted into different sizes. A spur track has been built and the Company will work day and night to fill the orders, some of which have come from a distance of 600 miles.

It may interest our readers to know that through the use of steam shovels in connection with low grade copper mining, considerable wealth was added to the United States last year.

The Utah Copper Company for the year 1915 produced $27,155,942, out of this was paid for operating expenses $12,132,109, leaving a net operating profit of $15,023,834.

Chino Copper Company, a subsidiary of the Utah Copper Company, produced in 1915 $11,383,777, with an operating expense of $4,695,048. The net operating profit was $6,668,729.

The ore from which this copper was produced will average less than 2 per cent. copper, was all excavated by steam shovels. during the year 1915 on these two properties, they used about thirty shovels with about half that number working on ore, and the balance of them being used for stripping purposes.

The River Rock & Gravel Company a subsidiary of the Niles Sand Gravel & Rock Company, are opening a new gravel pit near Tracy, Cal. The material will be excavated by a class-14 Bucyrus electric dragline, which is now being moved onto the work.

Coates & Williamson, Inc., San Francisco, Cal., have been awarded the contract for levelling, ditching and planting to cotton 10,000 acrews of land adjoining the town of Calipatria in Imperial Valley. Traction engines are being used, but the greater part of the work is being done with teams. This land has been referred to as the properties Balfour-Guthrie have under option to purchase. This is the largest contract of its kind thus far awarded in this section of the country.

W. H. Hauser has returned from Australia, where he has been operating a 70-C for the Sydney Water Supply at Sydney for the past two years. Hauser says it is hot there, hotter than—Well! than at Yuma anyway, and he is glad to be "to home". He tells us that J. G. Tripp is superintendent, and is very much on the job.

We have a sneaking idea that Smiling Loe Laccey has also dusted, and has taken himself away to Salt Lake City, where several have already preceded him. If he has'nt left for Utah where is he? Let him speak for himself!

J. G. Butler, superintendent of steam shovels for the Northwestern Pacific Railroad was a recent visitor at our office. He always has something interesting to tell us.

Steve Berrigan is operating a 14-B for the Whitley Construction Company, somewhere in the vicinity of Vallejo. Steve has been a long time at the game and knows how to run all of them.

The late reports on bids received on laterals for the Anderson Cottonwood Irrigation District, show that Porter Bros. Co. are low bidders, also on the diversion dam and weir across the Sacramento River. Chadwick & Sykes were low at $30,000.00 for the Churn Creek Siphon.

Canada

News from the Eastern Provinces

By R. St. John

Entire Welland canal work was held up on No. 3 section on account of a strike. Over 500 men are now out because of the strike of Italian laborers, which started on section No. 3 of the Welland Ship Canal Sunday night, May 14th, and the entire work is now held up. The leaders in the strike, to the number of sixty, armed with picks, drove the men off the steam shovels and later went to the machine shops of the Confederation Construction Company, contractors for this section, and chased all of the employees out of the building.

The Quebec & Saguenay Railway, which for years has been the subject of negotiations, is to be taken over by the Government. A supplementary estimate will be brought down this afternoon providing for a vote of $4,000,000 for the purchase and completion of the road and its expropriation. The Exchequer Court will determine the final value, and price to be paid. The railway is to be used as an adjunct of the Transcontinental, and it is designed to permit railway communication on the North Shore of the St. Lawrence from Quebec down to the Saguenay River. The line is tied up financially with the Quebec Railway, controlled by the Sir Rodolphe Forget interests.

Federal authorities are to be asked to extend the line of the Canadian Transcontinental Railway from Quebec to St. Catharines' Bay, Saguenay. C. B. Brown, Moncton, N. B., chief engineer, Canadian Government Railways.

The plans for boring a subway under the Lachine canal at Wellington street Montreal, have been sent to the Railway Department at Ottawa, for examination and transmission to the Dominion Board of Railway Commissioners. The subway will take from two to two and one-half years to build, and will cost about $300,000 to Montreal, Verdun, Montreal Tramways Co. and the Dominion Government, or a total cost of about $1,250,000.

Estimates of the Department of Railways, among them appropriations of $3,000,000.00 to carry on the construction of the Hudson Bay Railway, and its terminals at Port Nelson, and $1,500,000.00 for work on the National Transcontinental Railway, were passed by the Government.

J. E. Nelson, superintendent for the Canadian Northern Railway Co. at Port Arthur, has been informed that the sum of $250,000.00 has been appropriated for improvements between there and Winnipeg.

The city council of Outremont, granted a permit to W. Duquette, contractor, to erect a four-story fireproof community

garage within the city limits. The garage, which will be erected at the corner of Laurier Ave. and Durocher St. is to be of reinforced concrete, faced with brick and is to cost about $50,000.00. Work has been started. Our esteemed contractor friend, L. A. Ott, is building the above garage. Mr. Ott advises that, owing to the very bad conditions in the construction line, he will try his hand in this line of work.

It is estimated that the Dominion Government has in view, a comprehensive plan for the nationalization of Canadian railways, including lines in addition to the Canadian Northern & Great Trunk Pacific, which are now seeking assistance from Parliament.

Tenders are being received by A. P. Fraser, district engineer of the Canadian Northern Railway, Edmonton, for the construction of sixty miles of grade on the Medicine Hat-Hanna line. The work to be done this season covers the distance between Hanna and the Red Deer.

At a meeting of the Greater Winnipeg District Water Board the opinion prevailed, that the cost of the big work would be less than the estimated sum of $13,500,000. The railway and equipment, which cost $1,535,980, is now a going concern and is at last paying expenses.

Vancouver and Vicinity
By A. G. Brown

Walter Luney, of Luney Bros. Ltd., prominent contractors of Victoria, spent a few days in Vancouver last week. While here he picked up a dinkey and string of cars for use on their work in Victoria.

Geo. Medley who has been engineer on Luney Bros.' shove for several years, has taken a sub from Jones & Rant to excavate the reservoir on James Island.

E. G. Creelman & Co., have taken a contract to ballast the track through the new C. P. R. tunnel with crushed rock.

J. H. McMillan, of Cumberland, has been appointed inspector of mines with headquarters at Prince Rupert, B. C.

John H. Kilmer, A. M. Can. Soc. C. E., has been appointed city engineer and inspector of waterworks construction at Port Moody, B. C.

W. H. Dinsmore has been appointed traffic superintendent of the Vancouver city and suburban lines of the British Columbia Electric Railway, succeeding Mr. James Hilton, resigned.

The Provinicial Government of B. C. voted $2,255,800 for the maintenance of existing and the construction of new roads, bridges and wharves. Minister of Public Works, Hon. Thomas Taylor.

The Minister of railways has presented figures with regard to the completion of the Pacific & Great Eastern Railway. The cost from Second Narrows, Vancover, to Prince George is in the neighborhood of eleven and a half millions.

The B. C. Provincial Government is considering a project for the development of the water power possibilities of the province on a large scale, according to an announcement by Hon. Lorne Campbell, Minister of Finance, who was the guest of honor at the annual meeting of the Victoria Board of Trade.

With the object of linking up its Abbotsford line with the Canadian Northern to effect a junction for the Hope Mountain route, the V. V. and E. (Great Northern Railway) is planning to start within the next few weeks construction on the proposed extension to Sumas Landing, 14 miles distant. The building of the new section is expected to take three months.

Doings Along the Welland Ship Canal
By H. O. Bagley

The season has been very backward in this section of the country and all of the contractors are late in getting started, in fact the team outfits just started last week and are tied up now on account of the rains. Up to date we have had six clear days this month and no prospects for any more.

The laborers on the lake dump at Port Weller declared themselves the first of the month, but were ordered to go back to work or take a trip to the detention camp, the most of them went to work. Section 3 had about the same experience a few days later and it ended the same as Port Weller.

Mr. Cameron, resident engineer of Section 3, has succeeded in organizing an engineers club at Thorald, which takes in contractors as well as engineers, and all members and friends are assured a good time whenever they get around to the old home place.

Yale & Reagan have taken another sub-contract under Baldry, Yerbaugh & Hutchinson, for the excavation of Lock No. 3, about three miles south of their original job and includes hauling and disposal of material in Lake Ontario. Yale and Reagan have their 70-C Bucyrus shovel working on the new job.

The government is installing some new improvements for washing stone at their crusher at Thorald.

Connecticut

C. E. Coon Construction Co., Cleveland, Ohio, has been awarded contract by Willimantic and Manchester Street Railway Co. for construction of about 20 miles of railway from Manchester Greens to Willimantic.

Florida

Another large excavation contract in connection with the drainage of the Everglades, was let on May 29th by the Board of Commissioners of the Everglades Drainage District, at Tallahassee. The work called for approximately $,648,000 cubic yards of earth excavation, and 1,637,000 cubic yards classified as rock. Except for one section of 1000 feet, this is all dipper dredge work. On the above mentioned section, it is recommended that a steam shovel be used in advance of the dipper dredge.

Foreign

Sweden—Albert Louis, who this last winter has been with the Intercontinental Construction Corporation in charge of their dragline work on this Interborough Rapid Transit Contract in Brooklyn, has recently gone over to Sweden to superintend the installation of four 100-C and one 35-B Bucyrus electric shovels for the Luossavaara Kirunavaara Aktibolag.

Uruguay—It may be surprising to some contractors and shovel men in this country, to know that MacArthur Brothers Company are at the present time operating a railroad in Uruguay. About thirty years ago, it was planned to build a system of railroads to serve certain undeveloped parts of the country, and to connect existing lines. The plan was based on the hope of an eventual connection with North America. A North American syndicate took over the original concession in 1909, and the result was the Pan-American Railroad. For various reasons this project fell through, and in 1914 the government arranged with MacArthur Brothers to finish a section of 29 miles between Durazno and Trinidad. This company completely reconstructed this line and it is now in successful operation under their charge as an independent railroad system.

Georgia

Philip Rouse is erecting an 18-B Bucyrus revolving shovel for the Sugar Valley Land Company at Sugar Valley, Georgia.

Winston & Co., Richmond, Va., have let subcontract to Willard & Boggs, Spartanburg, S. C., for steam shovel work on second tracking of Southern Railway, near Toccoa, Ga.

Idaho

A contract for considerable amount of betterment work to include constructing new siding, spurs, passing track, etc., over entire main line system, has been awarded by Oregon Short Line Railway to Utah Construction Co., Ogden, Utah.

UMI

Illinois

E. T. King has recently completed the erection of a 14-B Bucyrus shovel, for the Illinois Kaolin Company at Anna.

Chicago and Vicinity

By E. C. Hingston

E. L. Lawman called on us on May 16th. He is looking for a job around Chicago. He also has a proposition up his sleeve which he is nursing, and we wish him success and hope that he will become a capitalist, as the proposition as put up by him is certainly a good one. We may expect to hear from Mr. Lawman in the course of a few months as one of the John D. Rockefellers or Chas. M. Schwabs of the country.

R. E. Perry stopped in and paid us a visit on his way from Jacksonville, Fla. to San Francisco. He states that his work is progressing nicely and that he has dredges working on both the Pacific and Atlantic coasts, and in the Gulf of Mexico. Mr. Perry has many novel ideas in the hydraulic dredge business.

Carl Lenhardt of Los Angeles, was in the city last week and advises that if the Bucyrus 68-C shovel which he is using at his new cement plant in California, had a tongue it could talk, as it does almost everything else but talk at present. We had a pleasant talk with Mr. Lenhardt and wish him the best of success with his new plant.

Some of our readers no doubt have missed a few "shots" from our friend Fordham, and wonder what has become of him. That's easy to explain. Fordham is out getting orders. His friend Frank hasn't even seen him long enough to say "Hello Liz" of late, but some day Fordy will come back with his pockets full of orders and with a big broad smile.

O. W. Momsen has installed a 100-C Bucyrus shovel for the Brownell Improvement Company at Thornton, Illinois.

Contract for constructing an irrigation ditch 3 miles long at Walnut, Ill., requiring 71,000 cubic yards excavation has been awarded to R. H. and G. A. McWilliams, 332 South Michigan avenue, Chicago, Ill., at 18c and 20c per cubic yard.

Indiana

O. W. Momsen has recently completed the erection of a class-24 Bucyrus dragline for East & De Frees at Worthington, Ind. This dragline is in operation in a sand and gravel plant.

Kansas

Pittsburg and Vicinity

By W. S. Russell

Contrary to expectations, the warm weather usual at this time of the year has failed to put in appearance, it has been moderately cool except for a few days and generally fair with occasional showers. The farmers have been industrious for the past month and have succeeded in plowing and planting most of their fields. The coal market has revived with a good demand for industrial coal which includes the zinc smelters, and prices have stiffened. We quote as follows:—

Lump per ton, $2.25; Nut per ton, $2.00; Mine run per ton, $1.85; Mill run per ton, $1.65; Slack per ton, $1.45; f. o. b. railroad cars at the mines.

We note from trade journals, that the demand for steam coal in the middle states is very satisfactory, with increased business from industrial centers.

Several new zinc smelters have been erected within the past year in Kansas and Oklahoma. Some of them costing from $150,000.00 to $200,000.00. These plants are fitted to use a low grade of soft coal. The mines and smelters in the Joplin district are now using a large amount of soft coal all of which is a big help to the coal business.

Joplin and Pittsburg, 26 miles apart are the liveliest towns in Kansas these days. The streets are crowded with people, automobiles are flying about and everybody seems prosperous. There are no lack of entertainments, with moving pictures, theatres, circus shows, musical and various other conventions, baseball games, fires and funerals, all of which make it lively and keep people from getting lonesome.

G. M. Boyd of Warrensburg, Missouri, has shipped the 95-ton Vulcan coal stripping steam shovel purchased by him to his field at Warrensburg.

The 225-B Bucyrus steam shovel recently purchased by the Clemens Coal Company, is being installed at Minden, Missouri, on a field of 300 acres. Charles Flynn is the erecting engineer for the Bucyrus Company.

The Roy-Millner Coal Company of Weir City, Kansas, now have their new 225-B Bucyrus steam shovel in full operation at Curranville, on the Kansas City Southern Railroad, Fred Gebhart is engineer, and Dick Garrett, cranesman, A. W. Roy is manager of field operations. This company also have a 150-B Bucyrus at Curranville and another at Weir City, both of them are in daily operation stripping coal.

The Interstate Coal Company are becoming well known as one of the leading and reliable dealers in the coal business, with the general office in the Commerce building, at Pittsburg. J. F. Dowis, manager. They have a sales office in Kansas City. C. H. Markham, sales manager, 415 R. A. Long building. Also one at Joplin with Ed. Buxton, sales manager. These gentlemen being up-to-date coal men are handling the business with care and steadily increasing sales.

This company handles the output of six coal stripping firms as follows: Roy-Millner Coal Company; W. W. Patterson Coal Company; Packard & McWilliams Coal Company; Pierce Coal Company; Barton Ridge Coal Company and Skidmore-Patterson Coal Company. These six firms own and operate ten steam shovels, having a daily capacity to strip or uncover 3,000 tons of coal per day in a moderate depth of overburden, or over 60,000 tons per month of 20 working days. This company is therefore, well fitted to take large contracts having such a large production to draw from and being able to make prompt deliveries.

There was a big time at Pittsburg on May 17th, when the "Miners' Day" celebration took place. The weather was fair and not too warm and coal miners with their families from the surrounding mines poured into town by the thousands. The main celebration took place at Lincoln Park. The program consisting of band concerts, speeches, foot races, sack races, tug of war, ladies' contests, prizes of one dollar each for the tallest miner, shortest miner, fattest miner, oldest miner, glee club concert, etc. There was also a miniature mine erected in the park where an explosion took place. There were three rooms fitted complete in every detail just like an underground mine. Five men were at work in the mine when the explosion took place. Real mine dust was used in making it truly realistic. Of course the two men who were apparently blown up were not hurt at all, but the rescue service got them real quick in order to demonstrate the value of quick action and prompt aid in saving life. Governor Capper was one of the principal speakers of the day and the celebration was a grand success.

There are good opportunities for parties having means to engage in coal stripping in the Kansas field. Strip coal land can be bought or leased at reasonable prices, and there is good money in the business. Further information will be furnished by addressing W. S. Russell, Stilwell Hotel, Pittsburg, Kansas.

The Bucyrus Company have a stock of repairs for their coal stripping steam shovels at the W. L. Sullivan Machinery Company storeroom, which is a great convenience to operators of Bucyrus steam shovels.

The W. L. Sullivan Machinery Company are located on Seventh street near Broadway, where they carry a stock of coal miners, mill, railroad and contractors' supplies. They are dealers in machinery, engines, boilers, pumps, motors, etc., for either steam, gasoline or electric. Also have repairs for Bucyrus steam shovels. Mr. Sullivan will give his personal attention to the wants of their customers.

Kentucky

J. E. Seale is running a 70-C Bucyrus for the L. & N. Railroad at Hazard, Ky. He states that there is nothing to compare with the "Buckeye".

Louisiana

W. D. Haden & Co., Galveston, Texas, have been awarded the contract for the second section of the Gulf, Sabine & Red River Railroad, owned by the Lutcher & Moore Lumber Co. of Orange, Texas. Contract covers 16 miles, making 28 miles now under contract. Cook & Richards, of Crockett, Texas, were recently awarded contract for a 12-mile section.

Michigan

The Houghton County Road Commission awarded a contract to J. E. Blomgran of Norway, Mich., for grading and macadamizing the highway from Lake Linden to Laurium at $22,000. The Dollar Bay to Lake Linden road was awarded to Hicks Engineering Co., of Vulcan, Mich., at $38,000. The road will be macadamized 16 feet wide with crushed rock.

Minnesota

News Items from the Twin Cities

By Clapp, Norstrom & Riley,
1308-1309 Pioneer Bldg., St. Paul, Minn.

W. J. Hoy of this city has sublet from McArthur Bros., one million, five hundred thousand yards of dragline work at Vincennes Ind. Mr. Hoy is busy moving six draglines on this work and purchased the other day a new class-14 Bucyrus dragline on caterpillars for June delivery, making seven draglines in all going on this work.

Contracts for road construction and repair work to cost the county approximately $60,000, were awarded or advertised for by the Hennepin County Commissioners, Minneapolis, Minn., at a session on May 2nd.

The largest contract awarded, was for grading and macademizing approximately three miles of road from Wayzata to Long Lake, Minn. The contract was awarded to F. H. Balch & Company of Minneapolis for $14,000.

Another contract awarded, was to J. J. Mergens & Company for $4,886, for grading and graveling approximately a mile of road, from Lyndale to Portland avenues, along Fifty-fourth and Clark streets.

The third contract awarded, was for grading and graveling one mile of road in Minnetonka township, leading south from Excelsior boulevard. It went to the J. J. Mergens Company for $4,060.

Authorization of bids for the construction of a concrete road through Robbinsdale, was the largest single piece of work sanctioned by the commissioners this year. In length, the road is more than a mile. The estimated cost is $25,000.

The second contract for concrete construction work authorized by the commissioners, was for three quarters of a mile to connect the North Shore road with Superior boulevard. The cost of the work has been estimated at $18,000.

Bids were authorized on three other road contracts for grading and graveling, approximately a mile each, on Stubbs Bay boulevard in Orono; the Lake Independence to Hassan road, in Medina township, and the Bloomington to Edina road in Bloomington and Edina townships. Work on the three roads will not cost in excess of $15,000, according to the estimate of the commissioners. Bids on all the new road work will be opened at the meeting of the board May 26.

H. A. Whittier was a recent caller at this office and we will have to admit that he hasn't changed a particle and is still the same, old H. A. He told is he was ready to retire from the contracting game as soon as he had made about $200,000.00 more, which he expected to do within a short time. He has subbed from A Guthrie Co. about 100,000 yards of grader work near Lambert, Montana, and is now busy moving his outfit to the job. As Mr. Whittier has practically all summer to finish this work in, we do not expect that he will go after any new records.

Stanley Bros. of St. Cloud, Minn., have taken about 20 or 25 miles of State Highway work at Pettibone, N. D. They are now getting their outfit in shape and expect to commence work about the middle of the month.

C. C. Smith of Minneapolis, signed up the other day quite a nice contract at Sioux City, Iowa—about 60,000 yards of steam shovel work. Mr. Smith too this work from Grant Smith Company of St. Paul. He expects to finish the work in 60 days by putting on two shovels. Part of this contract consists of loading about 25,000 yards of company equipment.

Earl Cravens of Winston Bros., Cravens & Murphy, called the other day. He has rented his entire standard-gauge steam shivel plant to the Minneapolis & St. Louis Railroad Company, who expect to be using it for about six weeks.

H. F. Riley came up from Chicago a few days ago with a customer, to whom he sold while up here, one 70-C Bucyrus shovel and two standard-gauge, 6-wheel switchers. This outfit is to be shipped into Canada.

We have heard it rumored that W. F. Carey will arrive here the first week in June from China, for a short visit, when he will again return to the Orient. His many friends will be glad to see him.

Colonel Erle D. Luce, vice-president of the Electric Short Line Railroad, has announced that complete right of way had been obtained and grading commenced on a 70-mile extension of the Luce line, to cost about $1,000,000. The new rails will run from Hutchinson, the present western terminal, to Montevideo by way of Clara City. Grading was started the first week in May by H. F. Balch & Co. Rails will be laid as fast as possible. Colonel Luce said, and the extension may be completed within a year.

Missouri

St. Louis Items

By A. B. Koenig

C. F. Nagel, LaGrange, Mo., is in the market for some rock and team work.

The J. A. Ware Construction Co. of St. Louis, are at work on force account for the Wabash Railroad at Missouri City and South Liberty, Mo.

The Brockelhurst Potter Construction Co. of St. Louis, Mo., have moved several steam shovels on to the Pennsylvania Railroad near Delaware, Ohio. They have a contract for building a cut-off for the Pennsylvania Railroad near that point.

Geo. C. Smith, Sr., of Geo. C. Smith & Sons, died at Paris, Ill. on May 1st. Two of his sons are going to continue in the contracting business. They have a good dragline idle at Paris, Ill. that they can place on work at once.

W. F. Wood is finishing his work on the Burlington Railroad at Woodlawn, Ill. Wants another grading job for his 10-team outfit.

Costello Bros. got in on 700,000 yards of team and steam shovel work on the Southern Railroad between Newminister and Seneca, S. C. They have opened a branch office at Newminister, South Carolina.

The Rosedale Construction Co. of St. Louis, Mo., were low bidders on the levee work right near St. Charles, Mo.

McCann Bros. are doing a little force account work near Grand Tower, Ill.

Printy & Butler are going to finish their levee work at Cummins, Ark. in a few days. They have 21 teams that they would like to place on railroad work.

T. P. Newland has his outfit at work in Alton, Ill. grading streets. Also is at work on a side track for the Burlington Railroad near East Alton, Ill.

Cameron Joyce & Co. have one of their outfits at work on state aid work at Rushville, Ill. Another one grading and paving at Winona, Minn., and another on county road work in Tama County, Iowa.

The City of Alton, Ill. will let some street paving and grading contracts in a few weeks. H. M. Landon is city engineer.

The Northern Construction Co. of Corning, Ark., have about 10,000 yards of team work to let at that point.

Joyce Bros & Co. Keokuk, Iowa, were awarded 20 miles of road grading near Sidell, Ill.

Mulvill Bros. of Alton, Ill. are grading a spur for the Burlington, Railroad near East Alton, Ill.

Lane & Tylor have subbed 20 miles of road grading near Sidell, Ill. from Joyce Bros. & Co.

C. D. Younglove is putting in some switches and side tracks for the Baker Lead Co., near Elvins, Mo.

Hickey Bros. St. Louis, Mo., are starting on 10,000 yards of concrete work on the Southern Railroad near Seneca, S. C.

List & Gifford Construction Co. Kansas City, Mo., were awarded 300,000 yards of steam shovel and team work by the Aluminum Ore Co., across the river here.

J. E. Lyman is going to superintend the work that the J. A. Ware Construction Co. has on the Santa Fe Railroad in Kansas.

Amos & Deen expect to get started on their work on the Santa Fe Railroad in Kansas within the next week.

T. L. Campbell secured a $15,000 job of rip-rap work on the Kaw River at Topeka, Kansas.

Kansas City and Vicinity

By M. T. Babb

Russell Condon of Omaha went through Kansas City a short time ago. He is not too encouraging as to prospects in his vicinity for the coming season.

A new contracting firm has been organized, with offices in St. Louis and Kansas City. L. J. Smith of this city and P. Hannon of St. Louis are the members of the new firm of Smith & Hannon. This firm will bid on certain work, but on some contracts they will not bid together. This is a strong combination and no doubt their success will be marked.

Wm. Spencer was low bidder on a new road contract in the county last week. The work has not been let at this writing, but it will doubtless go to Mr. Spencer.

It has been some time since Mr. Spencer has appeared in the contracting world. His many friends will be interested in knowing that for several years he has been the owner and operator of an extensive stone quarry near Independence, Mo. In this work he has been successful. Today he is operating one of the largest plants in the west.

The Luck Construction Co. have started work on their contract for the Standard Oil Co. near the Sugar Creek Refinery. This company has a fine piece of work and the yardage is large.

Amos & Deen have taken a sub-contract from the Ware Construction Co. of St. Louis for their Santa Fe work, near Corliss, Kansas.

A. E. Hanna of Tulsa, Okla., writes us that he has taken some Frisco work near St. Louis, Mo. He has not as yet moved to his new contract.

New York

New York City and Vicinity

By H Grey

H. S. Kerbaugh, Inc. 6 Church St., New York City, are low bidders—$630,558.00, on Barge Canal contract 23A, which includes 600,000 yards of earth excavation.

The next lowest bidder was the Walsh Construction Co., Davenport, Iowa—$646,160.00.

George W. Williams is now installing a 103-C Bucyrus shovel in the quarry of the Upper Hudson Stone Company, at New Hamburg.

J. Albert Kruse is operating a 14-B Bucyrus revolving shovel in Philadelphia.

A. Canning is operating a Vulcan shovel for the Kingsbridge Construction Company at Maspeth, L. I.

North Carolina

E. P. Hayward was installing a 14-B Bucyrus shovel for the Wright-Johnstone Contracting Company at Topton, N. C.

Ohio

News from Ohio

By Sykes & Coffin

The Kirschner Construction Company of Cincinnati, Ohio, are doing their street grading with one of their 14-B. Bucyrus shovels, working at Warsaw Ave. The second 14-B which they have is working on the grading for Harrison Ave.

R. E. Cash of Cincinnati, has about completed the work for his 14-B on the grounds of the new school house in the Norwood section of Cincinnati.

H. C. Carland Co. of Toledo, is rapidly completing the C. H. & D. R. R. work they have near Middletown. The output of the 85-C Bucyrus, is restricted because of passenger and freight train service over the track they use for their cars. The trains of dirt cars are used north of Middletown, Ohio, for fill on the new double-track work.

Ohio has been afflicted with a lot of high water, and Dayton has very ably gone ahead with their flood prevention plans. Their engineering department is ready to let contracts for millions of yards of earth work as soon as the leagl work of Miami Valley Conservative District is completed.

In contrast to this harmony, the Franklin CountyConservative District is divided by internal contentions and antagonist attitude of part of the public toward the report of the consulting engineers, Alvord & Burdick of Chicago.

The engineers upon investigation have adopted a plan which will guarantee Columbus and counties surrounding this vicinity, protection against high water. This plan involves a dam at Dublin and a dam at Delaware, as well as channel improvements. Rather than accept the experts' opinion on this, part of the public, in order to save money, wants to eliminate the construction of the dams which would provide the retention basins.

From present indications the work in the Franklin County Conservative District will be much more slowly done than the work in the vicinity of Dayton.

Both of these pieces of work will be let by contract and should be ready by next April of 1917, for bids.

The Pennsylvania Railroad has not awarded officially the grade elevation work, etc. in the vicinity of Delaware.

The State Highway Department in Ohio, let $1,500,000. worth of road work on May 19th.

Brackerhurst-Potter Construction Co., of New York, secured 800,000 cubic yards of grading on the Pennsylvania Railroad near Delaware, Ohio, from the Carter Construction Co.

News from Parlett

C. S. Brown, who is operating the Modern Coal Mining Company's 225-B Bucyrus shovel, advises us that this shovel is working two 9-hour shifts stripping overburden, and the 35-B Bucyrus working one 8-hour shift loading coal. This coal is a very fine quality of Pittsbugh No. 8. Mr. W. P. Bates, general manager, told him a short time ago that under the system of doing repairs inaugurated by him on March 1st, the shovels are running steadily and at about one-third the cost for repairs.

The Hopedale Coal Company have their model-300 Marion nearly erected and expect to begin to move dirt very soon. Mr. Saxton is superintendent.

Mr. E. C. Hingston, central sales manager of the Bucyrus Company was a caller at the mines of the Modern Coal Mining Company about the middle of May. He got caught in one of the heavy rain storms without a rain coat.

Pennsylvania

Wilkes-Barre and Vicinity

By Edward George

Shovel work is not very active in this vicinity at the present time. There are only two machines at work, and they are loading coal from storage plants for the Delaware & Hudson Coal Company, one at Oliphant, and the other at Parsons. Edward George is foreman in charge of the former plant. The shovel crew is Charlie Oberg, engineer, Walter Bell, cranesman and John Williams, fireman. The clam shell machine is operated by John Farrell, and fired by Martin Stapleton. The crew at Parsons consists of Sherman Freeman, engineer, Tom Malloy, cranesman, Jim Daley, fireman and John Hammell, foreman.

Tim Burke of Scranton, has six shovels and John Burke all his outfit, idle. Porter Brothers have all their eastern outfit idle and stored away at Carbondale. Ed. Whalen of Towanda has his outfit idle at Skenevus, New York.

The Delaware & Hudson Company expect to do a large amount of grade elimination through Scranton, the estimated cost of which is $1,000,000. The Department of Public Works submitted the proposed plans to the council a week or so ago, and it is said that the latter are in sympathy with the proposed improvement.

The Delaware & Hudson have two Cyclone drills at work in Wilkes-Barre, testing the depth of the coal in the Baltimore vein. It is expected that they will let a large stripping contract here as soon as the plans are completed.

The Wilkes-Barre Railway Company have their 14-B Bucyrus electric revolving shovel at work on Harvey's Lake short line. The machine is clearing land slides. E. A. Hoffman is engineer in charge and the shovel is operated by Edward George, Jr.

George Stanbery is erecting a class-14 Bucyrus dragline for the Duquesne Contracting Company at Corliss, Pa., which is near Pittsburgh.

Tennessee

Theodore Speiden, Jr., formerly superintendent of the Nashville and Chattanooga divisions of the Nashville, Chattanooga & St. Louis Railway, has been promoted to the position of assistant general manager, with headquarters at Nashville.

Texas

M. C. Coffelt is on a new model 61 Marion shovel, bank widening for the "Katy" near Auston. He tells us that on the 22nd of February when he was running an old style 70-ton Bucyrus with S. S. Burch as cranesman and Earl Sherman as fireman, he loaded 190, 12-yard cars with only one train in use.

Utah

The S. B. Doyle Company of Omaha, Nebraska, have a contract under Kilpatrick Bros. & Collins Contracting Company, for 600,000 yards of excavation between Wasatch and Emery, which they expect to finish about October 1st of this year. C. R. Conover of Denver and Edward Peterson of Omaha have subcontracts for team work under them. The S. B. Doyle Company are using a Marion and a Bucyrus steam shovel, thirty dump wagons, seventy-six dump cars, two Davenport, two Porter, one Vulcan and one Baldwin locomotives.

We give below, list of contractors and sub-contractors who are at present engaged on the Union Pacific work between Evanston, Wyoming and Wasatch, Utah. All those mentioned are sub-contractors under Kilpatrick Bros. Collins Contracting Company except those specially mentioned, who are subibng under other contractors.

L. A. Johnson, Wasatch, Utah; 125,000 yards, machine work. Sprague, Nisely & Purdy, Castle Rock, Utah; 809,000 yards, steam shovel and machine work. Two 70-C Bucyrus shovels and five Vulcan locomotives used. Hamilton & Gleason, Castle Rock, Utah; 604,000 yards, steam shovel and machine work. Two 70-C Bucyrus shovels. Dooling Brothers, Castle Rock, Utah; 387,000 yards, steam shovel and machine work. One model-60 Marion, three Vulcan locomotives. Barker Brothers, Castle Rock, Utah; (sub-contractors under Sprague, Nisely & Purdy), machine work. Crook & Hoffman, Castle Rock, Utah; 380,000 yards, machine work. D. S. Gerow, Wasatch, Utah; 253,000 yards, steam shovel work. One 70-ton Bucyrus and two Vulcan locomotives, dump cars, tec. Young & Crook, Wasatch Utah; two tunnels and 65,000 yards of shovel work on tunnel approaches. One Model-40 Marion, Vulcan locomotives, etc. C. R. Conover, Wasatch, Utah; machine work. D. R. Mathew, Echo, Utah; steam shovel and machine work at Emory, Utah. Allen & Lafferty, Castle Rock, Utah; 265,000 yards, steam shovel and machine work. Connelly Brothers, Castle Rock, Utah; 150,000 yards, shovel and machine work. Bucyrus 40-R, locomotives, etc. S. B. Doyle, Wasatch, Utah; 603,000 yards, steam shovel and machine work. Pat Fitzgerald, Wasatch, Utah; (sub under Sprague, Nisely & Purdy), machine work. Gibbons Brothers, Wasatch, Utah; one tunnel and 25,000 yards approaches. Marion model-40, Vulcan locomotives, etc.

Virginia

Robert M. Rogers of Fredericksburg, is firing a 45-ton Bucyrus shovel for the Musterfield Sand & Gravel Company, at Massaponax.

The Chesapeake & Ohio Railway is reported to have awarded contract for branch line from Williamsburg, Va., to proposed site of new plant of E. I. du Pont de Nemours & Co. to Simon Curtis, Leehall, Va.

Washington

A contract has been awarded A. Guthrie & Co., for constructing about 24 miles railroad in Yakima Valley for Northern Pacific Railway, and to Porter & Conley, Portland, Ore., for grading 24 miles roadbed.

West Virginia

W. W. Boxley & Co., Roanoke, Va., were awarded the contract for three miles of second track work between Job, W. Va., and Alnwick, Va. Work includes about 131,000 cubic yards of excavation, and 10,000 cubic yards of masonry.

PROSPECTIVE · CONSTRUCTION

Alabama

Contract for constructing Delta highway to connect Mobile and Baldwin counties will be let soon by county clerk at Mobile.

Arkansas

Greenwood District of Sebastian County will build concrete-shale road for a distance of 29.2 miles; estimated cost $217,000.

Plans for construction of about 40 miles road near Murfreesboro, to cost about $150,000, will be completed in two months by Lund & Hill, engineers, Little Rock, Arkansas.

California

Board of Supervisors Bakersfield, will receive bids until 10 A. M., June 8, for grading, and construction of pavement and culverts on 7.45 miles of highway from Taft northwesterly.

County Highway Commission, Fresno, Cal., has reported in favor of construction of county highway system of 441 miles, 235 miles being concrete roads, 108 miles gravel roads, and 98 miles graded roads in the mountain portions of the county. Estimated cost is $3,600,000.

County surveyor A. J. Logan, Eureka, Cal., is preparing plans for construction of highways in Mattole township. Estimated cost is $50,000.

Canada

The House of Commons of the Dominion Government have passed an estimate calling for the appropriation of $3,000,000 to carry on the construction of the Hudson Bay Railway and its terminals at Port Nelson. This road is to be 424 miles long. 378 miles have already been graded and on 241 miles, steel has been laid. It is estimated that the road will be completed to Port Nelson by the Autumn of 1917. The total cost is to be about $26,000,000 including the terminals at Port Nelson.

At the same time as the above, $1,500,000 were appropriated for work on the National Transcontinental Railway.

A resolution was submitted providing for the payment by the government of a subsidy towards the construction of the St. John & Quebec Railway, commonly known as the St. John Valley road. This subsidy is to be paid on about 191 miles of line. On the completion of these lines, the Dominion is to lease them and operate them as part of the Government Railway System, paying to the Province of New Brunswick, 40 per cent. of the gross earnings, until all bonds issued in respect to construction or guaranteed by the Province, had been paid.

Colorado

It is being proposed by Denver & Rio Grande Railway, Denver, Colo., to spend about $500,000 this year for improvements, and bids will probably be called early in the fall.

Denver & Rio Grande Railroad will make surveys for proposed 30-mile branch, extending south from main line to Castledale and Huntington, to tap 38,000-acre tract on which it is proposed to build a $1,000,000 sugar factory.

A project is under consideration for issuing $6,000,000 of bonds by the Denver & Salt Lake Railroad, for the construction of the tunnel under James Peak.

Connecticut

New York, New Haven & Hartford, it is estimated, will expend between $25,000,000 and $30,000,000 in the next five years for improvements.

Florida

Preliminary surveys are under way for the projected line for the Tampa & Eastern Traction Co., from Tampa to Lakeland, 33 miles.

Kentucky

About $4,000,000 will be spent on reconstructing roads under supervision of State Commissioner of Roads at Frankfort.

Maine

It is reported in Bangor, that construction will be started this spring on the proposed line of the Eastern Maine Railroad from Bangor to Houlton, a distance of 120 miles. A considerable part of the right-of-way has been secured and location has been completed. George W. Maxfield is president and F. O. Beal, Bangor, is treasurer.

Montana

Bids will be received until 2 P. M., June 22, at office of U. S. Reclamation Service, Malta, Mont., for earthwork and structures on Bowdoin canal, Milk River project, including 134,000 cubic yards excavation, 220 cubic yards reinforced concrete, 450 square yards pavement, placing 14,000 pounds reinforcing steel and 50,000 feet B. M. lumber. Work is 15 miles east of Malta, near Bowdoin station on the Great Northern Railway. Particulars from U. S. Reclamation Service, Washington, D. C., Denver, Colo., or Malta.

North Carolina

The Duplin Railroad Co. received a charter to construct a railroad about 50 miles long, from Kinston, in Lenoir County, through Pender and Duplin Counties. Among those interested are G. B. D. Parker, of Chinquapin, and W. J. Kennedy, of Beulaville.

Oregon

Good progress is being made on the preliminary surveys of the Oregon, California & Eastern Railroad. This line was incorporated a few months ago, the project being to afford transportation facilities to a section of Southeastern Oregon, now without railroads and also to connect up five existing lines. As stated, surveys for a considerable portion of the lines have been completed and such good progress is being made in securing the right-of-way, that it is expected that some construction can be undertaken before next winter. The line will be about 400 miles in standard gage and will cost about $15,000 per mile. Robert E. Strahorn at Portland, Oregon, is president. N. H. Bogue is in charge of the engineering work.

Bids will be received at office of U. S. Reclamation Service, Hermiston, Ore., until 2 P. M., June 15, for enlargement of canals on Umatilla project. Work includes 168,000 cubic yards excavation and 370 cubic yards concrete. Particulars from U. S. Reclamation Service, Washington, D. C., Denver, Colo., or Hermiston.

UMI

South Dakota

The South Dakota Railroad Commissioners have granted authority to the promoters of the Duluth, Huron & Southern, to construct a line from Huron, South Dakota, northeasterly through the counties of Beadle, Clark, Codington, Day and Roberts to the state line. The line is to be extended eventually to a point in Minnesota. The right-of-way has been secured along most of the proposed route in South Dakota. W. E. Morrow, Huron, is a promoter.

Two main highways are to be constructed across Perkins County, one from Lemmon and the other from Hettinger. Address county clerk.

State Railway Commission at Pierre have granted to the South Dakota & Western Railway of Yankton, permission to construct a line from Mitchell to Platte.

Tennessee

Receiver W. F. Owen of the New Orleans, Mobile & Chicago, has been authorized by Judge Toumlin, in the Federal District Court at Mobile, Ala., to begin construction work on the extension from Middletown, Tenn., north to Jackson, 34 miles. The estimated cost of the work is between $700,000 and $800,000. Surveys were under way for such an extension in 1911.

Texas

Surveys are being made for the San Antonio & North Western from San Antonio, Texas, northwest through Medina Lake, Bandera, Medina City, and Rock Springs to San Angelo, a distance of 240 miles. The company desires to correspond with grading contractors, and is also in the market for equipment of various kinds. H. H. Fielder, chief engineer; A. A. Luther, president, San Antonio, Texas.

The Atchison, Topeka & Santa Fe Railroad, C. W. Felt, Chicago, Ill., chief engineer, are having surveys made for construction of branch railway from Lubbock, Texas, to Carlsbad, New Mexico, distance 120 miles.

Utah

Bids will be received until 2 P. M., June 15, at office of U. S. Reclamation Service, Provo, Utah, for work comprising 70,000 cubic yards canal excavation, 11,000 cubic yards rolled embankment, 3,500 cubic yards excavation for structures, 1,500 cubic yards reinforced concrete, and 700,000 cubic yards canal lining. Work is near Payson on the Tintic branch of the Denver & Rio Grande Railroad. Particulars from U. S. Reclamation Service, Washington, D. C., Denver, Colo., or Provo.

The Denver & Rio Grande Railroad Co. intends changing grades on main line west of Tennessee Pass, improving roadbed, building spurs in Utah coal fields, purchasing motive power and equipment for Utah Grand Division. Probable total cost, $1,500,000.

Washington

Contract for constructing proposed Grandview-Gibon cut-off will be let soon by the Northern Pacific Railway, St. Paul, Minn. Cost of work approximately $1,000,000.

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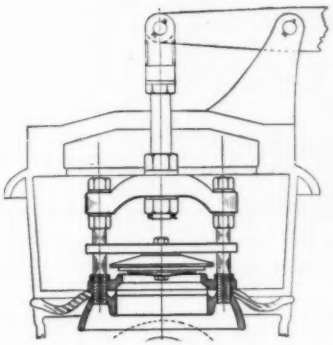

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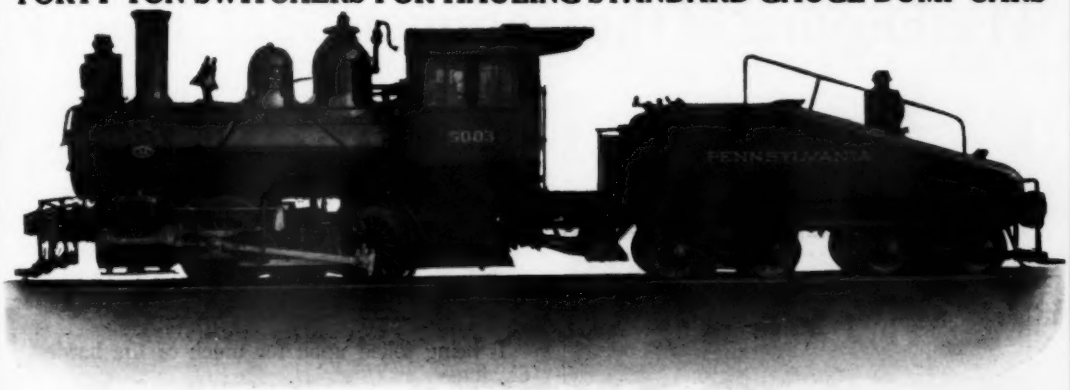

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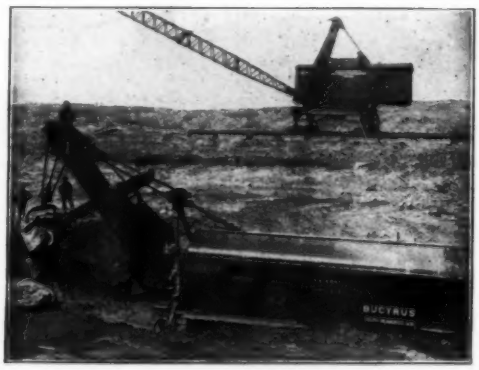

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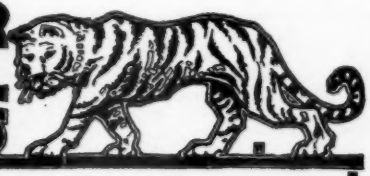

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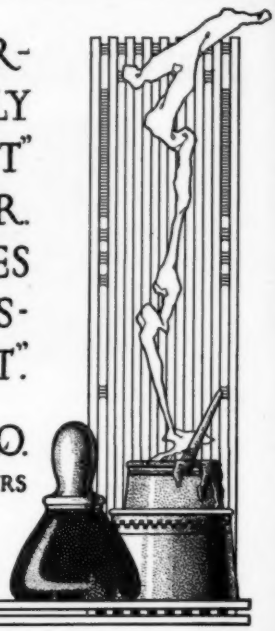

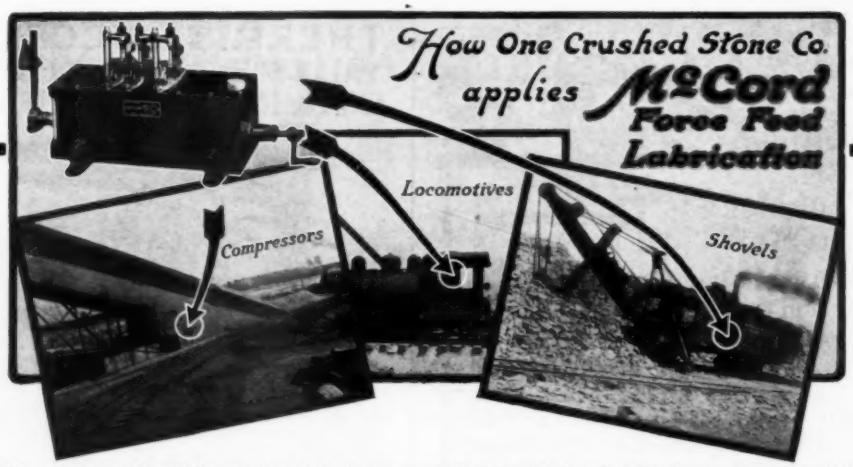

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